WMM3

MODELING SEQUENTIAL DECISION-MAKING IN PHARMACOECONOMICS

Bala MV[1], Zarkin GA[2]
[1]Centocor, Inc., Malvern, PA, USA; [2]Research Triangle Institute, Research Triangle Park, NC, USA

WORKSHOP OBJECTIVE: The objective of this workshop will be to develop skills in modeling and analyzing sequential decision-making problems in pharmacoeconomics.
PARTICIPANTS WHO WOULD BENEFIT: Analysts or decision-makers involved in the conduct or evaluation of pharmacoeconomic studies.

Most decision problems in pharmacoeconomics involve sequential decision-making, where the initial decision is followed by outcomes that affect subsequent decisions. However, future decisions are rarely explicitly modeled in most pharmacoeconomic studies. In this workshop we examine the problems associated with modeling future decisions as chance events, and describe the advantages of explicitly incorporating these future decisions in the decision model. We start by examining the different classes of decision problems, including decision-making under certainty, uncertainty, and risk. We describe how decision trees are an ideal framework for representing sequential decision-making problems. We then use an example to illustrate how modeling future decisions as chance nodes can lead to suboptimal decisions. We also use the example to illustrate how failure to explicitly model future decisions can lead to erroneous results during sensitivity analysis. We describe how models that explicitly incorporate future decisions can be used to develop optimal treatment pathways. Further, we argue that we cannot optimize the initial treatment decision without identifying the optimal treatment pathway. We explore possible reasons why future decisions are often represented as chance nodes in pharmacoeconomic models. Finally, we extend the discussion to Markov models. We show how future decisions can be modeled through the use of Markov decision models, which identify the optimal treatment strategy for each health state. We will conclude the workshop with an interactive discussion of the benefits and drawbacks of explicitly modeling future decisions in pharmacoeconomic models.

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SOFTWARE FOR COST-EFFECTIVENESS STATISTICAL INFERENCE

Obenchain R
Lilly Research Laboratories, Indianapolis, IN, USA

WORKSHOP OBJECTIVE: This workshop will demonstrate use of free Microsoft Windows software for calculation and graphical display of Confidence Regions for Incremental Cost-Effectiveness Ratios (ICERs) using either bootstrapping or Fieller's theorem methodology.
PARTICIPANTS WHO WOULD BENEFIT: Those who want to learn how to perform cost-effectiveness analyses and increase their understanding of ICER confidence interval literature will benefit from this workshop.

The workshop will demonstrate application of statistical/econometric methods that account for uncertainty and bias in an Incremental Cost-Effectiveness Ratio (ICER) comparing two treatments. Participants who bring a laptop to the workshop will receive a 3.5" IBM disk containing the software being demonstrated; the software can also be downloaded via the internet from http://www.math.iupui.edu/~indyasa. The workshop will cover five topics: 1) how to install the software on a personal computer running Microsoft Windows 95/NT/98; 2) how to prepare data input files; 3) how to use the software's menu items and dialog boxes; 4) how to interpret the printed output and graphical displays; 5) how to choose between alternative ways of reporting results (graphical display on the cost-effectiveness plane, ICER slopes, ICER angles, upper and lower confidence limits, upper and lower tolerance limits, acceptability curves and quadrant confidence fractions.)

WMS4

STATISTICAL ISSUES IN THE DESIGNING AND ANALYZING THE DATA FOR PHARMACOECONOMICS AND OUTCOME STUDIES

Rajagopalan R
Glaxo Wellcome Inc, Research Triangle Park, NC, USA and University of North Carolina, School of Pharmacy, Chapel Hill, NC, USA

WORKSHOP OBJECTIVE: The purpose of this workshop is to identify the statistical issues in designing outcome studies, calculating sample size, planning data analysis, and interpreting the results. Various alternative methodology and their benefits and opportunities to improve will be discussed.
PARTICIPANTS WHO WOULD BENEFIT: Analysts of cost and effectiveness data and the audience for the literature of economic evaluations of healthcare measures, drugs, and devices who want to increase their understanding of such literature.

The differences in design between RCTs and pharmacoeconomic studies will be discussed. When we perform cost-effectiveness comparison, we create cost-effectiveness ratios and compare them across treatments. If the variables, costs and effectiveness are normally distributed, it is very certain that the cost-effectiveness ratio will not be normally distributed. So we cannot use traditional methods to compare cost-effectiveness ratios. Therefore calculation of power, sample size and p-values is only marginally applicable. Next, we also consider modeling for cost-effectiveness—such as deterministic or stochastic modeling, decision analysis, Markov's processes, longitudinal